REMARKS/ARGUMENTS

Claims 1-28 are under examination in the present application. Originally un-entered claims 27-28 have been entered, are currently under examination and currently stand rejected. Please enter new claims 29-32. All rejections based on Pall have been withdrawn by the Examiner. The Office Action mailed on March 30, 2007, includes the following rejection:

1. Claims 1-28 are rejected under 35 U.S.C. § 102/103.

New claims 29-32 are fully supported by the present specification as originally filed and as such does not introduce new matter. Specifically, claims 29-32 are fully supported by paragraphs [0022], [0046] and [0047].

Claims 1-28 are rejected under 35 U.S.C. § 102(b) and in the alternative under 103(a)

The Action rejects claims 1-28 under 35 U.S.C. § 102(b) as being anticipated by United States Patent number 3,798,057 issued to Polovina, et al., ("Polovina") and in the alternative under 35 U.S.C. § 103(a) which is said to disclose the claimed invention.

To anticipate a claim, a reference must teach every element of the claim either impliedly or explicitly. See MPEP §2131. As elaborated in Richardson v. Suzuki Motor Co., "[t]he **identical invention must be shown** in as complete detail as is contained in the claim." 9 U.S.P.Q.2d 1913, 1920(Fed. Cir. 1987) emphasis added. Further, to anticipate a claim, "a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter." PPG Industries, Inc. v. Guardian Industries Corp., 75 F.3d 1558, 1566, 37 U.S.P.Q.2d 1618, 1624 (Fed. Cir. 1996). As stated by the Courts in Akzo N.V. v. ITC, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986) and Titanium Metals Corp. v. Banner, 227 U.S.P.Q. 773, 778 (Fed. Cir. 1985), the anticipating prior art reference "must enable one skilled in the art to practice the claimed invention, thus placing the allegedly disclosed matter in the possession of the public."

Applicants respectfully submit that the Polovina fails to meet the standard of 35 U.S.C. § 102(b) and/or 103(a) as it does not teach each and every limitation of the present invention and is non-enabling art. Thus, Polovina does not anticipate or render obvious any of the claims of the

present invention.

Polovina does not disclose each and every limitation of the present invention. Polovina discloses fibrous webs, such as asbestos paper, impregnated with a mixture of a chlorinated polymeric C_3 or C_5 hydrocarbon, a chlorinated terphenyl or chlorinated paraffin plasticizer, and a polyepoxy compound. The polymers disclosed in Polovina are all chlorinated polymers, specifically chlorinated polymeric C_3 or C_5 hydrocarbons limited to polypropylene and polyisoprene as discussed in column 2, lines 10-18.

> The composition used to treat such fibrous webs principally comprises a chlorinated polymeric hydrocarbon, specifically a chlorinated polypropylene ("chlorinated C_3 polymeric hydrocarbon") or chlorinated rubber. The chlorinated rubbers are preferred, and may be either natural rubbers or synthetic rubbers. Both the natural and synthetic rubbers principally comprise isoprene (C_5) units, and will be referred to hereinafter as "chlorinated polymeric C_5 hydrocarbons."

Polovina does not **identically disclose every element** of the claimed invention. See *Corning Glass Works v. Sumitomo Electric*, 9 USPQ 2d 1962, 1965 (Fed. Cir. 1989). A reference that excludes a claimed element, no matter how insubstantial or obvious, is enough to negate anticipation. *Connell v. Sears, Roebuck & Co.*, 220 USPQ 193, 198 (Fed. Cir. 1983). Specifically, Polovina teaches only chlorinated semi-crystalline polymers (e.g., chlorinated polypropylene and polyisoprene, e.g., polymer of C_3 monomers or polymer of a C_5 monomer) and does not teach non-chlorinated polymers, **amorphous polymers** or fibrous material impregnated with a compound having a continuous phase for inhibiting deposition of one or more dissolved or particulate contaminants in the water onto the medium, the continuous phase further includes an **amorphous polymer** or combination of **amorphous polymers**. In addition, the polymers of Polovina do not have a nonpolar solubility parameter δ_n within the range of about 6.5 to about 8.5 g, a polar solubility parameter δ_p within the range of zero to about 8.5 g, and a hydrogen bond solubility parameter δ_h, within the range of zero to about 7.0 g. Therefore, Polovina simply does not teach the present invention.

First, Polovina teaches the use of **chlorinated C_3 and C_5 polymers** and does not **identically disclose every element** of the claimed invention. The chlorinated polymers of Polovina have chlorine atoms that are in a pendant substituent position on the polymer backbone and creates a polymer with the chlorine atom to provide 3 unshared pairs of electrons laterally on the surface of the polymer backbone. This greatly affects the surface properties of the polymer,

in such a way that is contrary to the non-chlorinated polymers of present invention. For example, chlorinated polymers such as the chlorinated C_3 or C_5 polymers (Polovina) have a significantly higher specific gravity than the non-chlorinated polymers of the present invention. The present invention defines a precise specific gravity range (e.g., 0.80-3.5) for the polymers to provide performance within an acceptable limit. The chlorinated C_3 or C_5 polymers of Polovina have a specific gravity that is not within this acceptable limit. Although Polovina discloses isoprene (in the polymer form polyisoprene), the physical properties of polyisoprene are very different from the physical properties of the polymers of the present invention (i.e., polybutadiene). Specifically given the polymers of the present invention have a nonpolar solubility parameter δ_n within the range of about 6.5 to about 8.5 g, a polar solubility parameter δ_p within the range of zero to about 8.5 g, and a hydrogen bond solubility parameter δ_h, within the range of zero to about 7.0 g. For example, polybutadiene (polymeric of C_4 monomeric hydrocarbons) lacks the branched methyl group of polyisoprene (polymeric of C_5 monomeric hydrocarbons) and as a result, the physical properties are different, e.g., the glass transition temperature, crosslinking and thermal stability. Again, for the reasons listed above a chlorinated polymer of Polovina have physical properties that are unacceptable for use in the present invention, would not function for use in the present invention and lacks the physical characteristics of the polymer of the present invention. Polovina discloses only chlorinated polymers that cannot function as the polymers of the present invention and therefore does not **identically disclose every element** of the claimed invention.

Second, the chlorinated polymers of Polovina are **semi-crystalline polymers** and **again** does not **identically disclose** the claimed invention. The skilled artisan recognizes that the chlorinated polymers of Polovina have a molecular structure containing pendant methyl groups and chlorine groups on a generally straight carbon chain aliphatic or alkyl backbone. As a result, of the physical characteristics of the chlorinated polymers have a greater tendencies to be crystalline. As the skilled artisan recognizes polymers are a very diverse group of materials with diverse physical properties that are dependent on the components (or monomer). Polymers can be classified generally by their molecular arrangement into amorphous polymers, semi-crystalline polymers and crystalline polymers. As the skilled artisan knows, semi-crystalline materials have a highly ordered molecular structure with sharp melt points. Semi-crystalline

materials do not gradually soften with a temperature increase but, rather, remain hard until a given quantity of heat is absorbed to where the polymer temperature has reached an elevated point representing their glass transition temperature and above retain useful levels of strength well beyond their glass transition temperature (Tg). These materials are anistropic in flow, shrinking less in the direction of flow as opposed to transverse to flow. In contrast, amorphous polymers have a randomly ordered molecular structure which does not have a sharp melt point but instead softens gradually as the temperature rises. These materials change viscosity when heated, but not as easy flowing as semi-crystalline materials. The amorphous materials typically exhibit lower mold shrinkage and less tendency to warp than the semi-crystalline materials. Amorphous resins lose their strength quickly above their glass transition temperature (Tg).

Third, the chlorinated polymers of Polovina would not function for use in the present invention. The chlorine in the chlorinated C_3 or C_5 polymers of Polovina serves to greatly increase the crystallinity of the polymer, increase the surface tensions, increase the interfacial tensions with in-service water, increase the anionic character as opposed to the needed cationic character, increase the polar solubility parameters, increase the specific gravity and weights of impregnate. In fact, as a result of the physical properties of the chlorinated C_3 or C_5 polymers of Polovina cannot function as the polymers of the present invention.

Finally, the present invention teaches against the use of chlorinated polymers. Chlorinated polymers being mixed or chlorinated monomers that are copolymerized with other monomers **cannot** be a significant ingredient part in the polymers of the present invention. As a result of the physical properties of chlorinated C_3 and/or C_5 polymers of Polovina, these polymers are unacceptable for the present invention, would not function for use in the present invention and lacks the physical characteristics of the polymers of the present invention. Therefore, the skilled artisan could not take the teachings of Polovina to produce the present invention. The present invention also teaches against the use of chlorinated polymers, the present application illustrates that chlorinated polymers are unacceptable for use in the present invention as they will introduce properties to the polymer that are out side the parameters of the polymers of the present invention, e.g., as indicated in the application the cationic charge figure is in decreasing order of cationic character (i.e., chlorine is the 2^{nd} to the bottom in that list). In addition, the use of chlorinated polymers causes interferences with the free radical

polymerization and hydrolytic decomposition tendencies of the polymers, e.g., the chlorine compounds will react with the carbon-carbon double bonds to destroy their free radical reactivity. Furthermore, chlorine polymers, solvents and additive are well know to hydrolytically decompose easily in the presence of moisture and heat that generates hydrogen chloride and other reactive chlorine compounds. As such, the use of chlorinated polymers teaches against the present invention. Similarly, the teachings of the present invention, teach against the use of chlorinated polymers such as the chlorinated C_3 and/or C_5 polymers of Polovina. The parameters of chlorinated polymers (e.g., Polovina) are outside the parameters of the present invention and result in polymers that perform outside of acceptable limits of the present invention.

In addition to not identically disclosing the present invention, one skilled in the art could not practice the present invention without the teachings of the present application. Specifically, Polovina does not add **any** guidance as to: polymers that may be used other than polypropylene and polyisoprene; the use of non-chlorinated polymers functional groups that may be used; co-polymers that may be used; or any guidance or indication that amorphous polymers could be used. Therefore, one skilled in the art would not be unable to practice the present invention without the teachings of the present application and as such Polovina cannot anticipate or render obvious the present invention. See *Akzo N.V. v. ITC*, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986), and *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773, 778 (Fed. Cir 1985), the anticipating prior art reference "must enable one skilled in the art to practice the claimed invention, thus placing the allegedly disclosed matter in the possession of the public." Polovina clearly does not enable one skilled in the art to practice the claimed invention, and clearly does not place the allegedly disclosed matter in the possession of the public.

Polovina does not **identically disclose every element** of the claimed invention. Polovina teaches the use of **chlorinated semi-crystalline polymers** that would not work in the present invention. The chlorinated semi-crystalline polymers of Polovina could not be used in the present invention and given Polovina the skilled artisan could not arrive at the present invention. As such, the Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 102.

Claims 1-28 are rejected in the alternative under 103(a)

The Action rejects claims 1-28 in the alternative under 35 U.S.C. § 103(a). Applicants submit that claims 1-28 are not rendered obvious by Polovina for the reasons stated above and incorporated herein. As stated above, Polovina does not teach every element of the claim either impliedly or explicitly and neither Polovina nor any combination of art and/or knowledge has been provided to cure this deficiency. Simply stated, one skilled in the art could not practice the present invention without the teachings of the present disclosure. As such, the Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a).

Conclusion

In light of the remarks and arguments presented above, Applicants respectfully submit that the claims 1-28 and new claims 30-32 are in the Application are in condition for allowance.

If the Examiner has any questions or comments, or if further clarification is required, it is requested that the Examiner contact the undersigned at the telephone number listed below.

Dated: July 30, 2007.

Respectfully submitted,

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